

Amendments To The Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-16 (Canceled)

13 17. (New) Freeze-drying apparatus for foodstuffs and medicaments, which comprises: a main body part constructed by assembling an upright cylindrical tube for freezing material to be dried, which is prepared in liquid form, onto the inner wall surface of said cylindrical tube; and a jacket provided on and around the outer periphery of said tube in a substantially concentric cylindrical shape to cause heat medium to circulate within said tube, a duct communicating to a vacuum exhaust system being connected to the upper end side of said tube of the main body part, either directly or through a chamber, while an opening-closing valve being installed on the lower end side of said tube, or a recovery chamber equipped with a valve being connected to the bottom part of said tube, an inlet port for feeding said material in liquid form into the inner bore of said tube being provided in either the upper or lower part of said tube, said feeding port being

connected to the downstream side of the passageway for feeding said material in liquid form.

18. (New) Freeze-drying apparatus for foodstuffs and medicaments according to Claim 1, wherein said main body part of said freeze-drying apparatus constructed with said upright cylindrical tube for freezing material in liquid form to be desiccated, onto the inner wall surface of said cylindrical tube, and the jacket provided on and around the outer periphery of said tube in a substantially concentric cylindrical shape, for circulation of the heat medium, both being assembled together is mounted on a frame of said apparatus, by juxtaposing said tube in multiple series, said duct communicating to the vacuum exhaust system being connected to the upper end side of said respective tubes of the main body part arranged in juxtaposed position, either directly or through a chamber, while the lower end side of each tube is provided with the opening-closing valve, or connected with a recovery chamber equipped with a valve on the bottom part thereof, and an inlet port for feeding the material in liquid form to be desiccated, into the inner bore of said tube being provided in either the upper or the lower part of said each tube, said feeding port being connected to

the downstream side of the passageway for feeding the material in liquid form to be desiccated.

19. (New) Freeze-drying apparatus for foodstuffs and medicaments according to Claim 1, wherein said main body part of said freeze-drying apparatus, constructed with said upright cylindrical tube for freezing material in liquid form to be desiccated, and said jacket surrounding on and around the outer periphery of said tube in a substantially concentric outer cylindrical shape, for circulation of the heat medium, both being assembled together, is mounted on the frame of said apparatus by juxtaposing said tube in a plurality of juxtaposed series, the upper end side of each tube of said each main body part being opened to a duct leading to the vacuum exhaust system supported on said apparatus frame, or a chamber connected to said duct, while the lower end side of said each tube being connected to an opening-closing valve or to a recovery chamber equipped with a valve on the bottom part thereof, and an inlet port for feeding the material in liquid form into the inner bore of said each tube being disposed in said duct or inside said chamber connected to said duct.

20. (New) Freeze-drying apparatus for foodstuffs and medicaments according to Claim 1, wherein said jacket provided on and around the outer periphery of said upright

- cylindrical tube for freezing the material in liquid form on the inner wall surface of the tube, is divided into a plurality of sections in the vertical direction, and the heat medium Ao be circulated within said jacket being controllably circulated at a desired temperature, in each section, while said material in liquid form being frozen onto the inner wall surface of said tube.

21. (New) Freeze-drying apparatus for foodstuffs and medicaments according to Claim 1, wherein said main body part of said freeze-drying apparatus, constructed by assembling said upright cylindrical tubes for freezing material in liquid form onto the inner wall surface thereof, and the jackets for circulation of the heat medium, surrounding the outer periphery of said each tube in the substantially concentric outer cylindrical shape, and is mounted on said apparatus frame in a juxtaposed multiple series; and the upper end side of said each tube is communicatively connected to said ducts leading to said vacuum exhaust system, through said freely opening-closing valve.

22. (New) Freeze-drying apparatus for foodstuffs and medicaments according to Claim 1, wherein said main body part of said freeze-drying apparatus, constructed by assembling said upright cylindrical tubes for freezing

- material in liquid form, and the jackets surrounding the outer periphery of said each tube in the substantially concentric outer cylindrical shape, and is mounted on said apparatus frame in juxtaposed multiple series, said jacket provided on the outer periphery of said each tube being connected in parallel, through the freely opening-closing valve with respect to the passageway for the heat medium of the heat exchanger.

23. (New) Freeze-drying apparatus for foodstuffs and medicaments according to Claim 1, wherein a funnel-shaped inclined wall is provided at a downwardly protruding portion from said jacket which surrounds the lower end side of said upright cylindrical tube, said funnel-shaped wall having its diameter which is gradually reduced in the downward direction in a manner to position said diameter-reduced portion at the lower end of said funnel-shaped inclined wall, below the lower edge of the material in liquid form to be frozen in the cylindrical shape on the inner wall surface of said tube.

24. (New) Freeze-drying apparatus for foodstuffs and medicaments according to Claim 1, wherein a supporting member is provided at a fixed position, or in a retractable manner, with respect to the inner bore of said upright cylindrical tube, said supporting member being protruded from

the inner surface of said tube toward the inner bore of the same, on the inner surface of a location which protrudes downward from the jacket covering said tube, at the lower end side of said tube, and being situated below the lower edge of the material in liquid form for desiccation, to be frozen onto the inner wall surface of said tube.

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